The Builder.

SATURDAY, SEPTEMBER 23, 1854.

A PILE of books which has gradually accumulated upon our table seems to reproach our silence, and to call for more speedy mention than we could hope to give them in the ordinary course. We ought no longer to leave unrecorded, for example, the publication of a Translation of Chevreul's important work, "The Principles of Harmony and Contrast of Colours,"* although we shall do little more than this on the present occasion, as we have elsewhere given considerable space in this number to the subject of colour, and contemplate a further disquisition, which will call for reference to M. Chevreul's book. The important law enunciated by him, that every colour, when placed beside another colour, is changed, appearing different from what it really is, and, moreover, equally modifies the colour to which it is in proximity, has regulated all later researches, and must always be borne in mind by those who pursue the investigation, or deal with colours practically. The translator is wrathful against some recent teaching on the subject in England. He says:—

"In books treating on the harmony of colours, it is usual to prescribe the proportions in which colours neutralize or *balance* each other, as the phrase goes, and, moreover, they are classed as *advancing* or *retiring:* this may be the jargon of the dancing-master, but it is not the language of science, and is stated in utter ignorance of the effects of simultaneous contrast. Thus, it is supposed that 5 square feet of red are required to balance or neutralize 3 square feet of yellow, or 8 of blue, without any qualification being made as to the physical or optical qualities of the coloured materials employed, or the modifications their colours experience from juxtaposition. This formula is apparently an empirical application of Newton's analysis of the spectrum, and of the proportions of the primaries and secondaries required *theoretically* to constitute white light. But to attempt to employ it mechanically with pigments of impure colours, as recommended by the writer alluded to, is to place a stumbling-block in the path of those undertaking the study of the subject."

M. Martel, the translator, makes occasional slips, as, for example, where he says in his preface that it must ever be regarded "as a highly *fortuitous* circumstance that this subject came under the investigation of so philosophic a mind" as that of M. Chevreul; but upon the whole the original is fairly rendered. The work will be found to be of the greatest value to all who are engaged in decoration, paper staining, and the preparation of furniture, and we recommend it to their careful attention. Brought as it is within the reach of all, by a low price, it ought to produce considerable effect in many branches of manufacture.

With reference to furniture, we would mention a very useful "Cabinetmaker's Assistant," published by Blackie and Son,† as containing a large number of suggestive designs of various degrees of merit, with some good practical observations, and useful particulars of the different woods.

Wood and woody-fibre are scientifically treated of in an interesting series of Lectures by Professor Brande on Organic Chemistry, just now published, under the editorial arrangement of Mr. J. Scoffern, late Professor of Chemistry at the Aldersgate College of Medicine.* This series constitutes the last of those delivered by Dr. Brande to the Royal Institution, with which he was connected for upwards of forty years, and from which he retired in 1852. Any eulogium on the pupil and friend of Davy, and the master and colleague, as well as friend, of Faraday, would here be uncalled for. Suffice it to say, that no failing vigour appears in this last professional effort of the lecturer, except a record of the loss of voice which mainly induced him to resign his onerous functions.

What a curious field of magical metamorphoses we are having evolved in organic chemistry! The subject, nevertheless, may be said to be as yet only in its infancy, although already immense interests have been built upon it and its metamorphoses as their essential, or their sole foundation. The *matériel* of organic chemistry is mainly or essentially a three-fold composition of carbon, hydrogen, and oxygen; and many of its wonders are evolved simply by altering the relative quantities and compositions of these three elements, or one or other of them. Nitrogen is another element, however, which also occasionally comes into play, and, indeed, is an essential in the animal portion of the organic material, and also occasionally even in the vegetable. It is also brought into action, together with other elements, drawn from mineral sources, as in the form of nitric acid, which, together with sulphuric and sulphurous acids, soda, lime, zinc, iron, chrome, and various other mineral substances, are made use of in the production of those metamorphoses and other operations, by means of which the organic *matériel* is turned to use. It is thus that organic chemistry comprises the arts of calico printing, bleaching, dyeing, soap and candle making, and many other processes, and it also embraces all that relates to sugar refining, fermentation as in the formation of beer, wine, spirit, &c. hydrocarbons and gas making, tanning of leather, the preparation of silk and cotton, *et multis aliis.*

There are, perhaps, no more striking or curious and interesting metamorphoses within the limits of organic chemistry than those connected with woody fibre, which not only comprise all such changes as the cottonizing of flax, and the corrugation of cotton, by the latter of which process a mere cold solution of soda is made to strengthen and convert the most flimsy cotton fabric into something like substantial calico, and, by help of resists, to impress it with all sorts of colourless pattern figures, and, indeed, prepare it even for colours, — but comprise also an art more peculiarly interesting to our readers, and to which, we think, far too little attention has as yet been directed,—namely, the art of converting the highly combustible—nay, conflagrating—"woody fibre" into a material almost, or wholly, incombustible, and at the same time preventing its destruction by rot. We allude more particularly to lignine or woody fibre in the actual form of wood,—of timber, which, by certain chemical processes, as is well enough known though not yet sufficiently acted on, is convertible into a fire-resisting, if not fire-proof material, the use of which in house building would greatly diminish the number of those terrible conflagrations among human dwellings and other buildings, the prevalence of which has induced us to describe the present mode of building such houses as little better than fire-raising in a chronic form.

The more obvious or designed purpose of those chemists who discovered the several modes of preparing timber in the manner referred to, was to fortify it against rot, itself a slow chemical metamorphosis, to which woody fibre is subject, and which becomes a matter of practical interest scarcely secondary to that of its combustibility, when we consider the dependence of buildings for their support on the timbers used in their construction, no less than on their brick or stone. The rot in timber is a mode of decay of which in general but two sorts are recognised, wet rot and dry. "The former," says Brande, "depends for the most part, if not exclusively, on a real chemical decomposition, referable to the combined agency of air and moisture, exercised at certain temperatures: the latter is chiefly, if not entirely, attributable to the growth of certain fungi—more particularly the *Polyporus destructor*, *Merelinus lachrymans*, and others which are of a more simple nature, all belonging to the genus *Sporotrichum*."

Now the decomposition of timber, from any cause, may be impeded, and, in the case of dry rot, may be altogether prevented, by imbuing the woody fibres with certain mineral solutions. Nor is this the only advantage attendant upon the use of such solutions: all of them which have been suggested, or brought into operation, by investigators, at different times, possess the quality of *diminishing the inflammability* of such timber as may be imbued with them.

Mr. Kyan was the first who practically carried out this idea of imbuing the substance of timber with a metallic solution. The preservative material employed by this gentleman was *corrosive sublimate*, the bichloride of mercury. "When merely considered in relation to its preservative effect," says Brande, "corrosive sublimate answers the purpose desired. There are various objections, however, to its employment. In the first place, it is an expensive material: in the second place, it is a poisonous, and a volatile material. Not only are the workmen who use it exposed to danger from its absorption, but there is reason to fear that living in continuous proximity with Kyanised timbers,—as, for instance, on ship-board,—may be prejudical to the health of a crew thus situated. In short, although the preservative effects of Kyanising are complete, the objections to this mode of preservation were so numerous, that another preservative solution was a desideratum. This desideratum," he adds, "has been fully attained by the invention of Sir William Burnett, who, instead of bichloride of mercury, employs the less expensive, more fixed, and equally efficacious salt, *chloride of zinc*,—a material which, so far from rendering timber injurious to health, possesses the great collateral advantage of being a disinfecting agent; for which purpose it is now indeed commonly employed. With these striking instances before me," he continues, "it does seem extraordinary, not to use a stronger term, that architects, and all who have to employ wood for purposes involving duration, do not avail themselves of so ready a means of preventing the calamities of wet and dry rot. Surely the prevention of these evils should be inducement enough to lead to the extended adoption of Sir W. Burnett's patent, even were the woody fibre thus treated not rendered almost incombustible. But when we add to the preservative effect of chloride of zinc on timber, as regards wet and dry rot, the important statement that such Burnettised timber is, in common parlance, all but incombustible, it does seem most strange, most perverse, I may say, that its employment is not universal."*

There is another metamorphosis of woody fibre to which the hopes of quarriers and miners, as well as of other and less peaceful tribes of men, have turned, but which has not as yet been found to answer the purposes expected of it: we allude

* The Principles of Harmony and Contrast of Colours, and their Application to the Arts." By M. E. Chevreul, Membre de l'Institut de France. Translated from the French by Charles Martel. London: Longman, Brown, and Co. 1854.

† "The Cabinetmaker's Assistant; a Series of Original Designs for Modern Furniture. With practical Observations on the Materials and Manufacture of Cabinet Work." Glasgow, London, &c.: Blackie and Son.

* "The Subject Matter of a Course of Ten Lectures on some of the Arts connected with Organic Chemistry." By William Thomas Brande, D.C.L. &c. &c. arranged from the Lecturer's Notes by J. Scoffern, M.B. &c. London: Longman, Brown, Green, and Longmans. 1854.

* In connection with the subject of woody fibre, we may say that No. 39 of the very useful serial, "Orr's Circle of the Sciences," published by Messrs. Orr and Co. of Paternoster-row, which happens to lie before us at this moment, contains some interesting microscopic sketches, as well as letterpress, on this matter.

to the singular change of cotton into what is called "gun-cotton," by merely steeping it in nitric or nitrosulphuric acid, and afterwards washing and drying it, the cotton still remaining to outward appearance as before, though now converted to a sort of fibrous or woven gunpowder. It was thought that in quarrying, tunneling, and mining, gun-cotton might be relied on as a substitute for gunpowder; but it is variable, as yet, in its action, and not much to be depended on. It even returns spontaneously to its original condition, and might actually be used as before in human drapery! Nevertheless, its employment as a blasting agent seemed to promise a greater measure of success. The total freedom of smoke with which it burns, is undoubtedly a great advantage to the miner, who, frequently, under the present system, is obliged to cease work until the suffocating fumes and smoke of gunpowder shall have slowly disappeared. Unfortunately, however, the use of gun-cotton has been discontinued even for this purpose, chiefly on account of the danger attending its manufacture, and its tendency to explode from the operation of slight causes.

Before quitting this curious subject,—the metamorphosis of woody fibre,—as an illustration of the natural magic of organic chemistry, we may just note, in passing, the singular fact that woody fibre—sawdust, for instance, can be readily converted into gum and even sugar, nay, and into a sort of bread, coarse, to be sure, as yet, but hopeful when we consider that it is actually transmutable by other processes into perfect sugar and gum. By merely pouring a quantity of sawdust on oil of vitriol, and incorporating the two with a glass rod, surrounding the mixture at the same time with ice, to prevent heating and consequent burning to mere carbonaceous matter, the sawdust is actually transmuted into gum; and if this gum be then dissolved in water, and exposed to prolonged ebullition (from thirty-six to forty-eight hours), it will be converted into glucose, otherwise called grape sugar!

The transmutation of saw-dust into deal boards, proposed by *Mr. Puff*, in the play, would seem to be more likely; but the perfectment, if it be possible, of such a process as should transmute woody fibre into wholesome bread, is certainly a work worthy of the exclusive life labours of any one of our most eminent chemists.

Wonderful, indeed, are nature's processes. Look, for instance, at that superb *lilium lancifolium*—the Lily with the lance-shaped leaves—with which a pleasure-giving hand has just now brightened up our room: gaze upon its wax-like petals, twisted into the most picturesque forms, with the pistil and the stamens, bearing with careful balance the rich brown pollen, thrown out from its snowy bosom, and dispensing around a delicious odour, gladdening a second sense throughout its whole existence: resolve *that* into its few simple elements, and seek the science which shall reproduce the beauteous flower!

An enlarged edition of the "Lectures on Polarized Light," by another eminent chemist, the late Dr. Pereira, has been recently published.* The theory of light on which Dr. Pereira preferred to base the general development of this still somewhat mysterious subject was, as might be expected of any subtle scientific mind of the present day, the undulatory or vibratory, rather than the grosser and more material, atomal, and projectile theory. We have a remark or two to make on the undulatory theory, which, with deference, we hope may be of use in the further development and more perfect understanding of all the beautiful phenomena of polarized light, although we shall not presume here to apply them ourselves to the end in view. The phenomena of polarization developed the fact, that light possesses a singular twofold order of procedure. Now, if the undulatory or vibrative hypothesis be well considered, that also essentially involves a twofold order of procedure. A vibration *is*, itself, in fact, a twofold order of procedure. It involves an advance and a recoil, an expansion and a contraction, or a radiation and a reconcentration. Let this analysis of the synthetical phenomenon which we term a vibration be kept steadily in view, and we very much mistake the consequences if it do not soon shed a new light on the nature of the difference between light polarized and unpolarized, more especially if it also be clearly appreciated that light proper is active force, rather than mere vibration, or rather that the vibrations or undulations in question comprise and resolve themselves, analytically, into the action of radiative, repulsive, or expansive force, alternating with concentrative, contractile, or attractive force, much more than the mere advance and recoil of waves of an ether-fluid as regarded without the explanative and recognised idea of such radiative and concentrative operation or repulsive and attractive force, mutually operative by and between the sun and the planet, through that elastic medium.

It is curious, by the way, and *àpropos* of attractive and repulsive force, to note how new ideas will slowly and silently work their way, ramifying in understrata, as it were, of science, till all of a sudden apparently unconnected facts become associated and identified in open day as a body of evidence establishing the truth of the new idea involved in them all. In the present instance it is a mere significant turn of expression, involving a fact, to which we mean to allude,—namely, that relative to the "negative or repulsive," and the "positive or attractive," used in the work under notice in reference to certain phenomena of polarization. Now some of our readers may remember that six or seven years since in the *Builder* we predicted, in respect to the electric forces, which themselves are closely though mysteriously connected with *those* of light, that the negative would be ultimately found to be more particularly connected with repulsive force, and the positive with attractive force. We afterwards mentioned various incidental facts and circumstances in support of this idea, and now we merely note this in passing as one more.

The name of Dr. Pereira is too well known, and his lectures on polarized light are already too popular to require the aid of any recommendation from us. Pereira was one of the first lecturers who awakened in us a love for experimental philosophy.

If we dally in this way, though, we shall scarcely lessen our heap. The second part of Mr. Fairholt's illustrations of Lord Londesborough's remarkable collection of ancient, mediæval, and Renaissance remains,* includes engravings of some very interesting early heaumes, or helmets, mostly obtained from "Churches in Norfolk"(!) by Mr. Pratt, and of a set of chessman apparently of the twelfth century. It promises to form a beautiful book. —— And what have we here? A manual for travellers upon the South-Eastern Railway, by William Jerdan, the veteran editor of the original *Literary Gazette*.† Mr. Jerdan has produced a very pleasant and useful handbook; and as it is marked No. 1, we may suppose that others are to follow. Speaking of the castle at Tonbridge, the writer mentions its last inhabitant, Mr. Samuel Beazley, the architect, who died there in 1851; and he gives an anecdote illustrative of the sharpness of his conversation when provoked. At a formal party at Theobald's, Mr. Conyers, a wealthy squire, somewhat rudely observed,—"Beazley, do you know what I heard some one say of you the other day? They called you, not Mr. Beazley, but Mr. Beastly." "Oh," replied Beazley, "that is not half so bad as what I heard them call you." *Mr. Conyers.*—"What did they say of me?" *Mr. Beazley.*—"Why, they called you Mr. Conyers!" He could not find a worse name for him. Beazley, who was a great punster,—said the ducks went under water for *divers* reasons,—that the rooks chattered because they had *caws* for conversation, and so forth,—if he had taken up the two next books which stare us in the face, Soyer's Shilling "Cookery,"* and Orr's "Carving,"† would have descanted on railway accounts, and Grinling Gibbons. We refer to them more seriously for an instant to say, that they are both very useful little books, and will tend to the improvement of our Homes. Voltaire used to say, "the English have a thousand and one religions, and only one sauce,—melted butter." Certain it is, that among the working, and even the middle classes in England, they pay much more for coarse wasteful cookery, than would obtain for them agreeable and nourishing viands of the best quality, under proper direction. Even in some decent houses, one needs the politeness of a certain doctor, who, when asked by the mistress of the house how he liked some birds, which were *rather* underdone, said, "They are admirable, madam,—*raw:* what would they have been had they been roasted?" Don't try a salad in such a house: they have never learned the simple but important fact, that properly to make a salad you should be a spendthrift with the oil, a miser with the vinegar, a sage with the salt, and a maniac in mixing. What we would more especially refer to, however, is the actual loss of nutriment sustained by the poor through want of knowledge in cookery, a loss which Soyer's book will help to lessen. "Led by an instinct," says Liebig, "which has almost reached the dignity of conscious knowledge, as the unerring guide, and by the sense of taste, which protects the health, the experienced cook, with respect to the choice, the admixture, and the preparation of food, has made acquisitions surpassing all that chemical and physiological science have done in regard to the doctrine or theory of nutrition." It is quite time that the masses in England gave themselves the advantage of this knowledge. In the arrangement of kitchens there is something too, for our architects and builders to do.

The kitchen affects the whole system of social happiness; and having got down into it we will stop there, and leave the rest of our pile for another day.

ANCIENT LECTERN.

THE annexed sketches of an ancient carved wood lectern may afford a hint or two to designers.

ON COLOUR AND ITS USE IN ARCHITECTURAL ART.‡

WITH regard to colour, the same observation holds good which does with regard to all the other works of the Almighty: "Seek Him where He may be found," is true of all these: specially is it true of light, when we remember by whom it was said "God is light, and in Him is no darkness at all."

Light, then, is the truest emblem of God. Colour is decomposed light. The combinations of colours, when they are such as to give forth light, gladden the heart of every child; when they tend to darkness, give a sombre tone to the gayest.

As an emblem of divinity the three-fold divi-

* "Lectures on Polarized Light; together with a Lecture on the Microscope." By the late Jonathan Pereira, Esq. M.D. &c. Edited by the Rev. Baden Powell. Longman and Co. London, 1854.

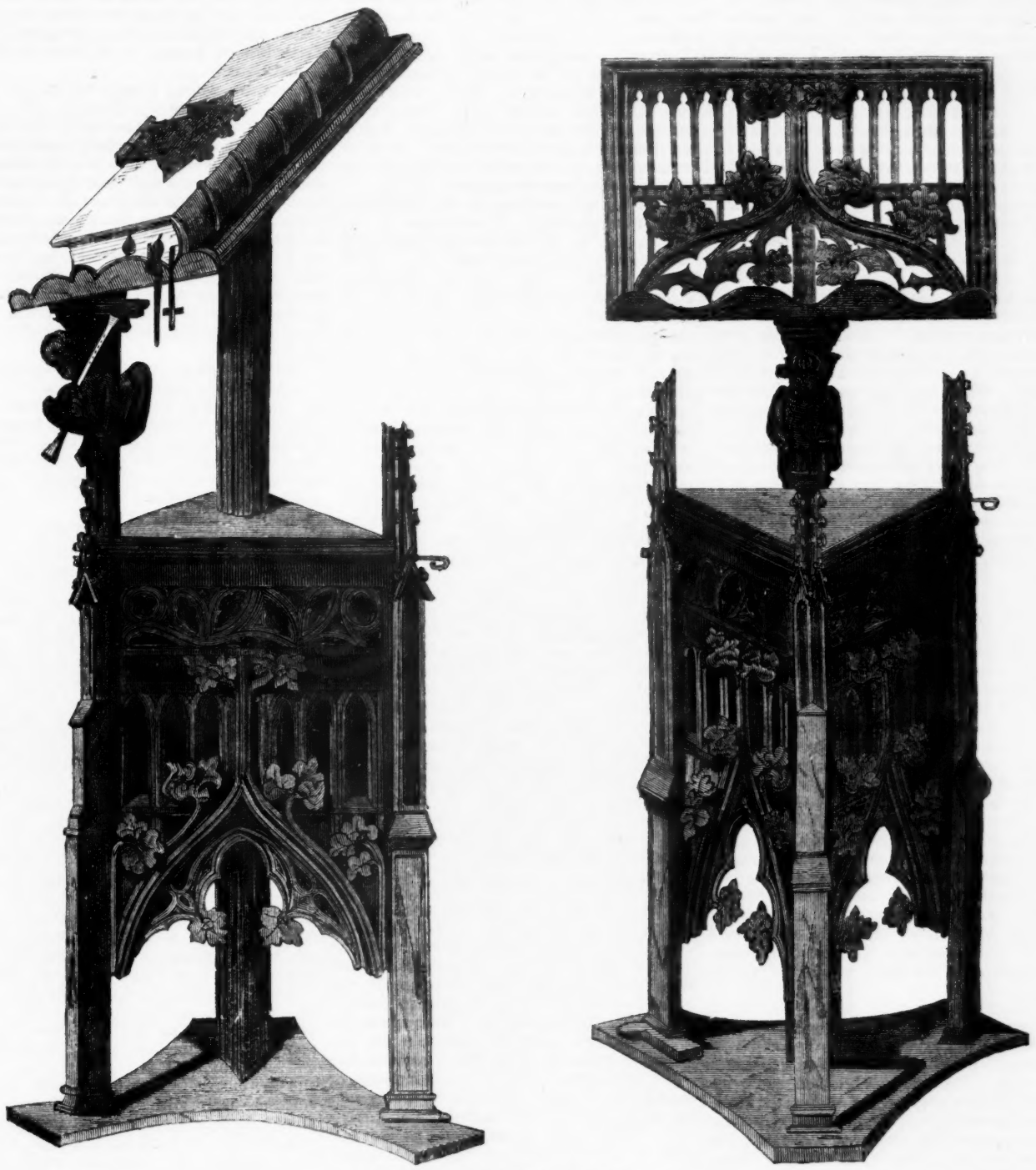
* "Miscellanea Graphica: a Collection of Remains in the possession of Lord Londesborough." Chapman and Hall, Piccadilly.

† "Manual for Travellers upon the South-Eastern Railway." By William Jerdan. Mead and Powell, London-bridge Terminus.

* Routledge and Co. Farringdon-street.

† "Table Observances, with Hints on Carving, and Kitchen Arrangements." Orr and Co. Amen-corner.

‡ By Sir Walter C. James, Bart. Read at the Architectural Museum, Westminster.



ANCIENT CARVED LECTERN.

sion of the primal ray is to be noted. Then there are three primary colours—yellow, red, and blue. From these three in various proportions all other colours are composed. No natural scene occurs in which we do not find their presence. It has therefore been well observed by a recent writer on the subject, "that to satisfy the eye and produce harmony of colours the presence of all the three primaries is required, either pure or in combination." Thus red, when not supported by due quantities of yellow and blue, is harmonised by green, a compound of blue and yellow. This may be well illustrated by those who travel in Devonshire or South Wales, where the soil is of that description called the red sandstone.

The foliage in contrast with this dark red earth assumes a deep and gorgeous green. As an example of the same principle, we may cite the common artifice of landscape painters to place in the foreground of their pictures a figure dressed in positive red—too ordinary a practice not to have attracted the attention of every child who visits one of our London exhibitions.

The three primaries, then, are blue, red, and yellow. Their mixture in certain proportions produces the secondary colours—orange, purple, and green. The mixture of the secondaries produces the tertiary or third division of colours. These, though occupying a more extended area, are less known than the primary colours. Orange and green produce a colour called "citrine," from a resemblance to the colour of lemons. Orange and purple produce russet—a warm grey, well known to any who love to gaze at the evening sky. The word "russet," which means a reddish grey, is common in the poets, and is a favourite colour with Turner and all great landscape painters. Green and purple produce "olive," a dark and most harmonious shade of green, such as the foliage of the elm or oak produces when seen on a deep blue sky. This olive green has a most lovely effect when we have a contrast and juxta-position with grey: it cannot be better described than by the effect of ivy clambering over a bit of ruinous stone wall, or the grey of the bark in an aged oak tree harmonising with its dark leaves.

Let us observe, however, the continuance of the three-fold principle.

Primaries.	Secondaries.	Tertiaries.
Blue,	Green,	Olive,
Yellow,	Purple,	Citrine,
Red.	Orange.	Russet.

Upon this division being settled, a very important question arises, upon which, undoubtedly, all questions of harmonious colouring must rest, viz. in what proportions do these colours mingle, so as to produce harmony? Mr. Redgrave, in his little "Manual of Colour," which should be in the hands of every student, quotes Field, who, in his "Treatise on Chromatography," has shown that material colours, mixed in the proportion of *three yellow, five red*, and *eight blue*, are neutralized and destroyed. This division is said to be grounded both upon philosophical inquiry into the nature of the primordial ray of light, and also upon experiments as to the quality of material pigments—the best possible, let us suppose, which the author in question had in his possession. The best possible blue in eight parts, combined with the best reds and yellows in the several proportions of five and three, neutralize and destroy each other; but the best possible blue may be defective in a degree which we can scarcely conceive, while

red and yellow, in the proportions already indicated, may be superior to it. Why nature should have made the colour, or rather the pigments, by means of which we obtain the colour *blue*, so inferior in point of intensity to the reds and yellows, we are not called upon to find out. Suffice it that such is the fact. It is worth note, however, that the atmosphere and water being the chief means of conveying blue to the eye, are, from their nature, incapable of being made the subjects of delicate experiments in the same way as the mineral and vegetable pigments which give us our reds and yellows. No painter can have practised his art without finding the difficulty extreme of getting a *good blue*. French blue, as it is called, greatly tends to purple. Antwerp and Prussian blue, notable for their brilliancy as colours, are remarkable, also, for their tendency to green. Ultramarine (the best that can be had) is the truest blue, and the price it bears sufficiently attests the rarity of blue pigments.* Sir Thomas Lawrence once told the writer of this essay that there was not such a thing as a truly blue flower. This, to those who know the blue salvia, may sound exaggeration; still the rarity of blue among flowers is worthy of note. Let us, however, assume that the proportions given by Field are correct, and that three yellows, five reds, and eight blue parts, neutralize each other. Nevertheless, in actual power, the three primary colours may be equal. By this we mean the colour that is weakest in force has, we may remark, the greatest extension in space, and while it emits but a small portion of light, has an immense absorbent *power*. Compounds of blue, therefore, in colouring, as a ruling tone, are universally agreeable to the eye. They are transparent and unobtrusive. They give distance, and, as a general rule, are the best basis for ruling tree backgrounds, which should be cool. It may be assumed that in every agreeable combination, the primaries are represented in their normal proportions. Take, for example, a picture of Rembrandt's. This, at first sight, may appear to be quite brown, and brown alone; but upon examination, it will always be found, in by far the larger number of cases, to contain a vast mass of cool grey in its background, through which the eye penetrates, and by means of which increased power is given to the ambers and madders, which give such glory to those venerable heads in which every student of colour revels.

It is, however, important to observe, that it is when mixed with other colours that blue is most usually found in nature. The sky itself in this country very seldom exhibits the glorious, pure azure. The more parched and burnt the earth, the bluer appears the sky, as in Italy, and all hot countries. It is not true, however, as some people think, that on a very fine day in England the sky is bluer than at other times. On the contrary, as Ruskin remarks in his "Modern Painters," on fine days the firmament is overspread with a thin gauze-like vapour, which obscures, as it were with a veil of gossamer, the deep blue of the vault above us, and attempers its hue to the grey climate of England. Really gorgeous blue is best seen on those days when this thin veil is gathered up into masses of round white clouds, which separate and display between their openings vistas of the most beautiful colour. Indeed, of all colours, except black and dark purple, blue contrasts white most powerfully. The architect can take advantage of this by vaulting his chambers with blue, and covering this with stars. Vaulting tracery of Caen, or other white stone, would look well over a blue ground. I do not remember to have seen an example of it, though it is common to notice bars of oak upon a blue ground. The celebrated ceiling of the still more celebrated Star Chamber is an example. Mr. Pugin has made use of this decoration in St. George's Roman Catholic Church, Southwark, where it has a good effect. It is a common mode of decorating chancels. Indeed, the vaulted roof especially calls for the employment of this deep azure colour.

Perhaps, however, it is in painted glass that the gem-like lustre of blue can best be seen. The glass in Canterbury Cathedral is of the twelfth century, and nothing finer is anywhere to be found. Blue predominates in those windows, at least in its normal proportion, of eight blue to five red and three yellow. As blue is the safest and best colour for painted glass, so is yellow the most dangerous. This is accounted for from the transparent quality of blue in nature, all natural blues, the sky, the sea, and atmosphere, being highly transparent. Glass has unusual facilities for the attainment of this same quality. Whereas in oil, the opaque nature of the material used frequently causes the sky, in modern pictures, to be most offensive to those who visit our academies. Turner avoided it, so did Titian; indeed, all the greatest painters.

Before quitting the colour of blue, it is our duty to notice its moral significance, as the colour of modesty, retirement, and of a placid and meek spirit. Indeed, the whole system of Christian symbolism as connected with colours is one which wants further illustration. Although more may have been asserted than is capable of actual proof, there seems little doubt that in the earliest times that feeling which, in our childhood, we all remember, of favourite colours, had matured itself into a system. Lord Lindsay indeed asserts, that this took place before the confusion of tongues and the general dispersion. He offers no other proof, however, of this fact, which must be prior to all written records, than "the correspondence and agreements on this point between nations very widely apart from each other in race and residence." To the generality, however, it will appear, that the constitution of the mind of man is such, that we involuntarily associate certain ideas with certain colours, and that in the most natural manner. Nobody, for instance, would think that a lady dressed in red or yellow was desirous of avoiding observation. Blue, on the contrary, is associated with meekness and humility. It is therefore a beautiful symbolism which in art almost universally represents our Saviour as clad in the two colours, blue and red,—

"Celestial rosy red, love's proper hue,"

indicative of the ardour, courage, and devotion with which he set his face as a knife against the powers and principalities of this world, the rulers of spiritual darkness in high places; and blue clearly showing forth that benign and tranquil spirit which led him (when those who little understood the nature of his kingdom and office would have taken him away to make him a king) to retire, as Elijah did in former times, to the rocky fastness, or the mountain brook, or the shadow of the juniper-tree, spending days and nights in prayer to His Father and ours.

The Holy Virgin is generally clad in these same colours, but blue is more predominant. This is but right. Generosity, truth, fidelity, are all noted by it. Heaven is generally symbolized in ancient art by the segment of a circle, sometimes of pure blue, sometimes edged with the three colours of the rainbow. The universe by a globe or sphere, usually also of deep blue.

The pediment of the British Museum now has a blue background, which relieves the sculpture very nobly; and it is highly probable that blue was the background used at the Parthenon.

Among the painters, Titian is a notable instance of the forcible employment of blue. The Titian in the National Gallery, which goes by the name of "Perseus," is a good example. "Fra Beato Angelico" glories in the lustre of a serene blue. The picture in Lord Ward's collection is an excellent instance, where the brilliant robes of the saints in Paradise, and of the Saviour, contrast with the serene of the Heaven of Heavens. Raffaelle excelled in blue skies. The "St. Catherine" in the National Collection" may be cited in proof of this, though a picture generally of a low tone of colour. Paul Veronese is to be noted for his splendid blue backgrounds, usually placed behind a gay assembly of figures. The "Marriage of Cana," in the Louvre, is a case in point. Among the moderns, none is more successful in his application of a deep blue than Etty. His naiads and dancing nymphs are almost always given out in relief upon a preternaturally blue sky. As mere specimens of colour they are fine. Paul de la Roche has a deep blue background for his grand picture, the great Artists of the Revival, painted in the Ecole des Beaux Arts at Paris.

These are a few, a very few of the uses of the colour blue in Christian art. It is pleasing to find that nature, by a sort of foretaste of the Christian system, associated the same class of ideas we now do to this beautiful colour. Minerva was the "blue-eyed progeny of Jove." Her mantle was blue. In classical, as in Christian art, it was the colour of chastity and virginity. Artemis is even robed in blue and white. Isis, the Egyptian Diana, by one of those coincidences which it is difficult satisfactorily to account for, called "The Mother of the Child," is also robed in azure, while Poesy herself is clothed in a vesture of celestial blue.

One of the pleasures of that classical literature which it is perhaps too much the tone of the present age to decry, as having but slender practical uses, is, that it gives, not merely new thoughts, but a new colouring to old thoughts. Thus when we think of Thetis, the goddess, the blue, blue sea, mother of the warlike Achilles, and the line of Ovid,—

"Cæruleos habet unda deos,"

literally translated,—

"The waves have their gods of 'true blue,'" —

it is hardly possible that an Englishman's thoughts should not revert to our own true blue tars, and their mother, Britannia.

A few words now concerning the primary colour which is most nearly opposite to blue,—*yellow*,—and which in its nature, is most nearly allied to the neutral white, as blue is most opposite to it. Gold, as a natural substance, is that which may be taken as the most common and perfect type of the colour, yellow. As blue cannot be seen in full beauty, save in transparent media; so neither can yellow, save in opaque media. Metals, marbles, earths, and draperies, but specially the two former, are some of the substances which display the rich warmth of yellow to its greatest advantage. Then we find in the decoration of the tabernacle and temple, decorations which, it might be well to observe, would amply repay attentive study,—the colour yellow represented by large masses of the precious metals of gold and of brass. We have in the Tabernacle, a golden candlestick, a brazen altar, with all its paraphernalia of basins and flesh-hooks and firepans, doubtless, all specimens of workmanship; and brazen pillars with their fastenings of silver, and the planks which surrounded the holy enclosure, cased with plates of pure gold. This must have been very beautiful, especially if we consider it in juxta-position with the rich Oriental draperies of purple and scarlet, and fine needlework with which it was combined, the whole backed by the deep bright blue of an Oriental sky. In Solomon's Temple we again find a development of the same principle which prevailed in the structure of the Tabernacle in the Wilderness, extended, doubtless, with greater cost, both of time and materials, and fine work, but all upon the same type or pattern. This surely teaches us that there are such things as art principles, and that the Bible sanctions them.

We can conceive no form of beauty more majestic than that of the two cherubim overlaid with gold, which separated the holy place from the fore part of the oracle. Thus we read in 1 Kings vii. 27,—"And he set the cherubim within the inner house, and they stretched forth the wings of the cherubim, so that the wing of the one touched the one wall, and the wing of the other touched the other wall, and their wings touched one another in the midst of the house. And he overlaid the cherubim with gold."

Nothing can give a more sublime notion of the beauty of the sanctuary than these gorgeous winged figures with outspread wings guarding its entrance, and all worked and overlaid with gold. Indeed, the state of metal-work in any given country at a particular time, is no bad test of the state of art. Perfectly fine colour without metal-work it is hardly possible to find in internal decoration. Our ordinary practice

* Walpole tells us that Charles I. presented Mrs. Carlisle with 100*l.* in value of ultramarine, which lay in so small a space as only to cover the king's hand. Barrow says that Vandyke partook of the royal bounty.

of gilding bears testimony to this. Nothing certainly is more absurd, and yet the gross defects which gilding will neutralize bear testimony to the inherent value of this kind of ornament. Nothing can be worse, for example, heavier, or more inelegant in form, than many of the mouldings at the various houses of our nobility; but, nevertheless, the amount of gilding with which they are covered hides defects, and produces a gorgeous and striking whole. No great artists have been indifferent to the forms and characters of the gilded frames in which they are wont to put their pictures. As Marc Antonio was Raffaelle's engraver, Bramante was his frame-maker. Singularly enough, a kind of dictum has become prevalent among artists, which bears witness to the truth of the views here put forth with reference to the inherent beauty of that rich yellow, hardly surpassed by

"The yellow harvest's countless seed,"

which the colour of fine gold presents. It is acknowledged, I believe, that no setting is so favourable to any picture as a broad band—or flat, as the gilders term it—of pure gold. You will observe it invariably used within the frame by all good water-colour painters and miniature-painters.

Upon the same principle yellow is a good colour for certain draperies, inasmuch as it sets off and heightens the greys and blues of the landscape and the sky. For our dull climate it is a great advantage to bear this in mind. Indeed, for furniture generally, a golden yellow has a fine and gorgeous effect. The picture gallery at Apsley House, in the time of the late Duke of Wellington, was furnished with yellow damask. The richness of its effect was noticed by all. It is an admirable ground for all cool pictures, such as sea-pieces and English landscapes. Seguir, who was a good judge, recommended his Majesty George IV. to adopt this colour for his picture-gallery at Buckingham House. The Claudes in that collection were much heightened in effect by the yellow ground, when (as the greater portion are) they are cool in tone. The sunsets, however, lose by it.

Before quitting the colour "yellow," I wish to say a few words upon the early practice of golden backgrounds to paintings, which, beginning with Mosaic work, was transferred to oil, and which, having been entirely abandoned for a long series of years, has reappeared at Munich within the last twenty years as part of the characteristic style of the early Christian basilicas.

In Byzantine art there is one constant source of grandeur, one principal element of the sublime, which I think later schools have failed to reach. I mean the prominence given to our Lord, and a correct pictorial idea of his twofold nature. The writings of archæologists, even as eminent as Rio and Kugler, prove to me that the ideal of this school has been but imperfectly understood. For instance, in reference to this very question of golden background, Kugler roundly states that it is the nature of a sunken art to endeavour to make amends for its incapacity for all original composition by the splendour of its materials. It may be so: certainly the splendour of the materials used, so far from forming the whole, forms but a small portion of art. It is commonly said, that a bad workman complains of his tools: might it not be said with equal truth that you cannot execute the best work without the best tools? The mere notions of costliness and labour add to the value of a work of art,—Aristotle said that men liked flattering because it proved that the flatterers thought them worth a good deal of trouble. So, as long as human nature is what it is, men will delight in costliness and pains about things of God, because it proves that we conceive no toil too great, no trouble too severe, to enable us worthily to celebrate the honour of the Almighty.

Now, with regard to golden backgrounds,—they have advantages: their tone is uniform and even; they therefore do not take the eye from the principal objects. The metallic ground reflects far more light than oil paint can. There is a horny varnish which blends with the oil and destroys its purity: gold is free from this. It is not devoid of that prime element in all high art,—mystery. "Gold," says Pindar, "is a sparkling fire, which in the hours of night shineth forth with glory, and is in its nature above all other wealth which exalts mankind." The notion which these golden backgrounds give to my mind is that of the highly illuminated vault of Heaven. The idea of the clouds being golden is one which has, I suppose, accompanied most of us from our earliest years, and hence naturally the mere background of gold gives a great dignity to any pictorial representation. Surely it is no small proof of this that artists so skilful as those of Munich (Cornelius and others) should have adopted it.

These arguments in favour of gold backgrounds are enhanced if we allow the mind to dwell with contemplative satisfaction on the historical position of the Byzantine churches. "They are," says a modern writer, "the vestiges of an age singularly interesting to the Christian student, and are tinged as it were with the light of two suns; on the one side by the setting sun of an old world, and on the other by the earliest gleams of a new day dawning on a new people and a new life."*

THE ATMOSPHERE AND DISEASE.

THE OZONE THEORIES.

On several occasions within the last few years, we have incidentally alluded to a theory of the cause of cholera, ascribed to Liebig, the chemist. If we rightly understand that theory, cholera is attributable to a *deficiency*, in the atmosphere, of an active form of oxygen, called ozone, and once believed to consist in a combination of hydrogen with oxygen. This ozone was regarded as a sort of scavenging, cleansing principle, by means of which all decomposing animal and vegetable substances, and noxious gases emanating from them, and pervading sewers and drains, &c. were rapidly consumed or destroyed. In seasons when ozone is deficient, therefore, the usual scavenging process is supposed, on this theory, to be suspended or imperfectly effected, so that the atmosphere is left loaded with poisonous gases, which produce deadly fevers, and in the worst of such seasons even cholera. Now, the idea seems exceedingly feasible; but what shall we say of another theory, adopted, it is said, by Schönbein, the discoverer of ozone itself, so far as regards epidemics in general, and according to which, as we now hear, this salutary scavenger is itself regarded as the very cause which produces epidemic cholera! On this new theory, which is advocated by Mr. Mayhew, a chemist, and brother to the able writer of that name, it is asserted as a fact, that ozone is superabundant, or in *excessive* quantity, in cholera seasons. If that be really the fact, of itself it upsets the theory of Liebig, as we have heretofore understood that theory, for then it is that noxious vapours ought to be most thoroughly neutralized and destroyed. There can surely be no difficulty in the ascertainment of such a fact. There are other hitches in the new theory, however, besides the counter theory attributed to Liebig. Mr. Mayhew still regards ozone as a compound of hydrogen and oxygen, whereas we have always understood it to have been of late regarded as a mere allotropic, or new and *highly active* form of oxygen itself, a form which is readily induced by electrical action, and which probably consists in oxygen *excited* by electricity, as it forms an excellent bleaching agent which abounds in the atmosphere in or after thunderstorms.† In this idea of ozone, we are borne out by Brande, in the volume we have elsewhere noticed, where, referring to it as a bleacher, he says,—

"It is time to speak of '*ozone*,' or *allotropic* or 'other' condition of *oxygen*. I believe the illustrious discoverer of this agent would not now object to my speaking thus distinctly in identifying ozone with oxygen in an allotropic state. For a considerable period there existed a doubt as relates to this point. When M. Schönbein first determined the existence of ozone, he imagined it to be a new oxide of hydrogen, but I think I shall not err in stating that he now considers it to be oxygen in an allotropic state."

Notwithstanding this difference of opinion, however, on the nature of ozone, so far as regards Mr. Mayhew, we do not see that it is fatal to his theory. Holding it to consist of a deutoxide of hydrogen, he considers it a producer of cramps and other choleraic symptoms when drawn into the lungs, and his object, therefore, is to "deprive it of its oxygen," whether in the atmosphere or in the blood. Now, agents tending to deprive such a deutoxide of hydrogen of its excess of oxygen, would be likely to be those also very well adapted to neutralize it even though it be only oxygen *per se* in a state of abnormal and unwholesome excitement. It is a singular circumstance, therefore, that the agent which Mr. Mayhew recommends as pre-eminently the anti-choleraic weapon, is precisely that which we have of late years pointed attention to, as not only strongly recommended by Professor Graham as a disinfectant in typhoid fevers, but as having been for many years used under quarantine regulations by the Government as a fumigator in plague, namely, sulphurous acid, or the fumes of burning sulphur. Mr. Mayhew states that "if an atmosphere of sulphurous acid gas be maintained in the chamber, and the diluted acid be administered internally, the *patient must recover*;" and he gives cases in which he has succeeded without any difficulty, and with great rapidity, in effecting cures. "I myself," he adds, "have used the sulphur vapour in two or three cases of incipient cholera, and the result has been truly marvellous. A lady who was seized with cramps and violent vomiting was placed in a room where an atmosphere of sulphurous acid gas was judiciously maintained. In ten minutes all pain had left her, the sickness had ceased, and she felt in perfect health. A lad was seized with purging, cramps, and vomiting: I made him go to bed, and burned sulphur in his room, until the air was strongly impregnated with the gas. In half-an-hour the lad had fallen asleep, and the next morning he awoke perfectly restored."

In India, it appears, sulphur has been used with undoubted success. In China, where sulphur is daily burnt in the shape of gunpowder in fireworks, cholera is said to be unknown. A slaveowner is said to have fumigated his negroes with burning sulphur, and thus warded off cholera, while, in neighbouring plantations, they were "dying off like flies." We ourselves, as lately stated, have found that sulphur relieved premonitory cramps. It is sulphurous acid, however, that Mr. Mayhew speaks of as of internal use, and burning sulphur (its equivalent), as we have also repeatedly advised, externally.

In the present perplexity and utter paralysis of medical skill, we regard it as the duty of every public writer to aid as far as he can in clearing up this terrible mystery; and as we do think that the probable cause of cholera may be found to rest somewhere between these two theories, the public attention cannot be too strongly, too earnestly, or too promptly concentrated on the subject of ozone and its modes of operation. There is one point which appears to us to militate very strongly in favour of the idea that ozone, if it be, as now appears, mere abnormally inflamed and ultra-active oxygen, is the great dread cause of cholera. Oxygen, it may be recollected, was by us, in a recent article, pointed to as not only the agent by means of which the blood was supplied with vital energy, but by means of which the organism was supplied with *concentrative* vigour: in other words, we expressed it as our conviction that the peculiar nature of the vital energy which it does contribute *to the blood*, *the muscles*, and the brain, is concentrative,—consolidative and fibrinous, so far as regards the blood and tissues,—contractile and bracing, so far as regards the muscular system,—and concentrative or consociative so far as regards the nervous centre and its tissues. Now it is an awful fact that the malignant energies at work in the organism during cholera

* To be continued.

† Is there not something remarkable in the want of usual thunderstorms, this season, at least, in the metropolitan districts? Can it be that the oxygen of the atmosphere, therefore, remains unduly charged with electric force (with *positive* electricity, we should suspect) precisely on this account that there have been so few thunderstorms "to clear the air" of this surcharge of noxious electricity, or to discharge and neutralize it? Yet this would scarcely be consistent with the alleged abundance of ozone *after* thunderstorms. Should it be as suggested, however, could not local measures be taken to counteract if not discharge the noxious (positive?) electricity, at least to some extent? Might not patients, for instance, be negatively electrified, if the positive, as we suspect, be the malign influence?

are decidedly and peculiarly concentrative. The muscular system is cramped; and what is cramp but a tremendous and abnormal excess of *contractile* force involuntarily overpowering the normal and neutral state of relaxation in the muscles? The very blood is *consolidated* into *fibrinous* plugs in the vessels and the heart itself, which they thus fill up, while the serous solvent of this now precipitated fibrine deluges the bowels! All this while the brain and the mind preside over the terrible cataclysm in clear cool *concentrated* and *collected* vigour which intensifies the horror of the contemplation. Everything, as we have said, denotes the overpowering predominance of *concentrative* energies abnormally active; and since oxygen in its normal state contributes such energies in normal degree to the blood and the whole system, it is reasonable to suppose that oxygen in its abnormal state of activity must contribute such energies in abnormal and destructive excess, unless promptly neutralised, either internally or externally, or both.*

Meantime, and whatever truth or error may pervade such reasoning, and strange as this new association of *sulphur* with this dread and destroying "prince of the power of the air" may seem, we again most earnestly advise the daily fumigation of every dwelling and its precincts with burning sulphur in every district or vicinity attacked, or in dread of being attacked, by cholera. Let clouds of such sanitary incense, as we have said, ascend, even morning, noon, and night. The influence, apart from all such reasoning, is *known* to be most wholesome, and has long been used, as we have said, in plague. On either of the theories referred to it must be highly beneficial. In the one case the sulphurous fumes will dehydridize the venomous gases which the *deficient* ozone leaves undecomposed. In the other, these fumes will neutralize and *kill* the excessive and virulent ozone, if in virulent excess it really be. It will be a substitute, if not an ally to ozone, if ozone be deficient. It will be an enemy to it, and its destroyer, if it be present in excess, while at same time itself neutralizing other noxious gases. The very confidence this practice would insure is an "armour of faith," which is highly sanative; for fear itself predisposes to such symptoms as those of cholera, since fear or horror is an abnormal *concentrative* state of action in the brain and mind which reacts abnormally on the body towards the production of these very symptoms, as the phrases—"freezing of the blood," "standing of the hair on end," and "paralyzing" and "rooting" of the limbs to the earth, under the influence of fear or horror, highly figurative though some of these phrases be, but too clearly indicate.

The disease is happily abating, and we must strive to put things in such order as to ward off similar sad visitations.

* Another point of scarcely less importance apparently in favour of the same view, relates to the singular association of great pestilence and great fires, to which we more particularly allude in another article in our present impression, namely, that on the late spontaneous outbreak of fire in Gloucester Cathedral, to which we may here refer.

THE WILTS ARCHÆOLOGICAL SOCIETY.

THE first annual meeting of this society, held in the ancient town of Salisbury, has passed off very successfully. The Bishop, the Marquis of Lansdowne, the Right Hon. Sidney Herbert, Mr. Poulett Scrope, M.P. the Mayor of Salisbury, Mr. Britton, and others, have taken active part. Mr. Sidney Herbert, as President, made a pleasant address on Wednesday, the 13th, in the course of which he alluded to the desirability of setting up some of the fallen stones at Stonehenge, if they would not have the prime features of the temple lost. We commend this to the society for their early attention. A report from the Rev. Mr. Lukis showed that the members of the society are now 281 in number. After a speech from the Bishop, the following gentlemen were elected honorary members;—The Rev. Joseph Hunter, F.S.A.; Mr. J. Y. Akerman (Sec. Soc. of Antiq.); Mr. E. W. Brayley, F.S.A.; Mr. Albert Way, F.S.A.; Mr. C. Roach Smith, F.S.A.; Mr. T. Wright, F.S.A.; Mr. George Godwin, F.R.S.; Mr. Wm. Yarrell, F.G.S. and F.Z.S.; Professor Owen, F.R.S.; Mr. Thos. Bell, F.R.S. President of the Linnean Society.

The Rev. W. C. Lukis then read a paper on church bells, to which we shall return. At the dinner, the Mayor presided, and some good speeches were delivered. At the evening meeting the Rev. Mr. Jackson read a paper on two chantry chapels founded by the Hungerford family, in Salisbury Cathedral, of which we must give a portion, namely, his account of—

The Iron Chapel.

This chapel, on which, from its peculiarity of material and appearance, Salisbury has bestowed the name of "The Cage," is 20 feet long, 8 feet 1 inch in breadth. Each side is composed of fifty-eight upright bars of iron, an inch and a half square: each end has fifteen bars, all strengthened by two horizontal rails: they were formerly painted in blue, gold, and green. The rails rise upon a stone basement, divided into three compartments, as are the rails above. In the several panels are coats of arms, within garters; in the centre, that of Lord Hungerford, the founder, quartering Heytesbury and Hussey; in the corners of the panel, knots of three sickles; in the eastern compartment, Hungerford and Katherine Peverell, his first wife; in the western, his coat impaling Eleanor Berkeley, the second wife; in the corners, single sickles. On the cornice, and on the Gothic ornament over it, are many other shields. The inside of the roof was painted with scrolls and Latin inscriptions. By the original deed, dated 1429, twenty years before his death, Lord Hungerford obtained leave, from the Dean and Chapter, to enclose, at his own expense, a space exactly corresponding with the dimensions of this chapel, between the first arch, to the arch where the altar of early mass was celebrated, to erect there an altar in honour of the Blessed Virgin Mary, and to make a place for his own burial.

There is still, upon the floor of the cathedral, under the arch, in the nave, where the iron chapel originally stood, a low broad monument of Purbeck marble, on which are the brassless effigies of the founder and his wife, Katherine Peverell; with many sockets of their favourite device, the sickle, and other arms, all now destroyed. Their remains were removed with the chapel in 1779, to its present site, as appears by an inscription.

The iron chapel is in very good preservation, owing to the interference of the late Lord Radnor, who considered himself sufficiently descended from the Hungerfords to be at much pains and expense to restore it. In a private journal of the year 1784, written by a Wiltshire gentleman, it is said that his lordship was two years in settling the heraldic ornaments now painted upon it.

On the second day, Wilton Abbey was visited. The church there was, of course, examined, and Mr. James Nightingale read a paper, elucidating Byzantine architecture, which we should give in full, but that our readers have lately had several essays on the subject. We shall confine ourselves to the closing portion of it which treated of

The Mosaics in Wilton Church.

The Wilton mosaics have a considerable interest from their date and history being known. They originally formed part of a shrine set up in 1256, in the Church of Santa Maria Maggiore at Rome. In the course of some alterations made there during the last century, they were purchased and sent to this country by Sir W. Hamilton, and remained at Strawberry-hill till Walpole's collection was dispersed, a few years since.

There exist also in Westminster Abbey some mutilated remains of a similar date and character, in the shrine of Edward the Confessor, finished in 1270, and in the tomb of Henry III. who died in 1272. Walpole supposes that these latter works in Westminster Abbey, and possibly the mosaics now at Wilton, were made by Pietro Cavallini, the well-known mosaicist and painter, and pupil of Giotto: this, however, could not have been the case, as Cavallini was not born till 1259. The very interesting but dilapidated relics still in Westminster Abbey were in all probability made by Italian artists.

There is still another kind of mosaic of great antiquity—the Opus Alexandrinum, ordinarily used for the pavement of churches, and composed solely of the three materials—porphyry, serpentine, and white or slightly coloured marble: these are embedded in grooves cut in marble slabs, allowing a white line to develope the geometrical base of the pattern.

A small but perfect example will be found in Wilton Church of the Opus Alexandrinum: it has been laid down in the pavement of the entrance porch, and was brought from Italy.

A large piece of this kind of mosaic, but of modern Italian manufacture, will be found in the pavement at the foot of the steps of the chancel, between the pulpit and the reading-desk.

The use of mosaic is unquestionably one of the most beautiful as well as the most enduring modes of church decoration: the variety of composition is endless, from the simple square and circle to the most intricate labyrinth of interlaced work: they display almost every variety and combination of colour, from the most retiring drab or grey to the gorgeous splendour of gold and purple.

Some very interesting glass of several different periods will be found in Wilton Church. The windows of the central apse are mostly fitted with glass of the thirteenth century: in the smaller apses are some curious pieces of the Decorated and later periods: several whole-length figures are remarkable for their good drawing and brilliancy of colour. In the side aisle window nearest the campanile, are arranged two portions of earlier windows of good Cinquecento work.

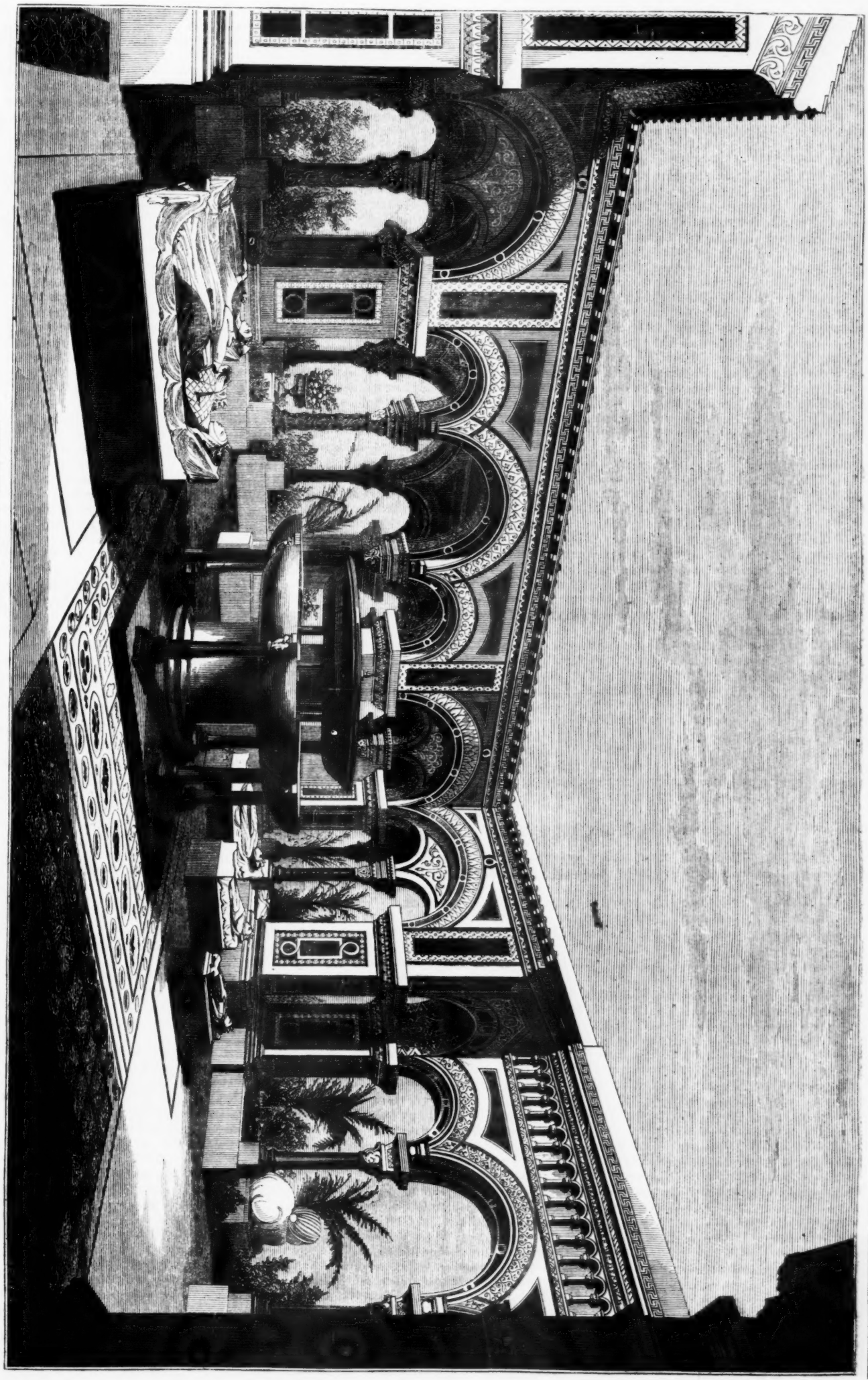
A conversazione at the Bishop's Palace closed the day, where Mr. Clutton, to whom has been confided the restoration of the Chapter-house as a tribute to the memory of the late bishop, read a paper on "The Origin and Uses of Chapter-houses." The sum required for the restoration is 5,000*l.*: 4,400*l.* have already been raised. At the closing meeting on Saturday special acknowledgement was made of the exertions of Mr. Cunnington in the formation of the society; and Mr. John Gough Nichols read "Some Notices of the Library at Stourhead."

THE BYZANTINE COURT IN THE CRYSTAL PALACE, SYDENHAM.

WE have already spoken of Byzantine architecture in connection with the Crystal Palace at Sydenham (page, 353 *ante*), and described the principal specimens there collected in illustration of it.

We now give a view of the Court specially appropriated to it, as seen looking towards the nave and transept, with the fountain from Heisterbach, on the Rhine, attributed to the thirteenth century, and the effigies of Henry II. Richard I. John "Lackland," Queen Berengaria, and others at the sides. The arcade next the nave is from the Church of St. Mary in the Capital, at Cologne, one of the most interesting structures in what has been justly called the Rome of this side the Alps. The arcade probably belongs to the tenth century. The marblings and general decoration of this side of the Court are very creditable to Mr. Beensen, by whom they were executed. The ceiling of the cloister is an admirable piece of coloured decoration. The Shobden doors, the Kilpeck doors, the mosaics from St. John Lateran, at Rome, and the bronze doors from Hildesheim and Augsburg, are against the sides opposite to those shown in the view. The bronze doors, both of the eleventh century, are particularly interesting. In passing round, notice the elegance of the ornament in the abacus of the capitals of the Shobden chancel arch, and some of the foliage in the Prior's doorway, from Ely, thoroughly Greek in derivation.

The whole of this Court will repay the most careful study; but it is a source of mystification to many, who are unable to bring under one heading the works of various dates, characters, and countries which it includes. Some intelligent guides, not to say lecturers, are greatly needed in the Crystal Palace. At the present moment, it is scarcely possible to find any one to whom the simplest question can be addressed. If we had not been told differently, we should have imagined that the whole board of directors, including the secretary, went out of town the week after the opening, and had never been heard of since.



THE BYZANTINE COURT, IN THE CRYSTAL PALACE, SYDENHAM.

MASTERS AND WORKMEN.

THE FIRE AT MR. CUBITT'S.

WE have already mentioned that at the time of the late disastrous fire on Mr. Cubitt's premises at Millbank, there were 609 men at work in the several shops. The day following a partial suspension took place, but on the next day temporary accommodation was made for those whose shops had been destroyed, and nearly all were set to work again, or at least to the number of 564. On the following Monday the numbers were increased to 656, and there are now employed on the premises and in their restoration upwards of 700 men.

Our object in referring again to this fact is to mention that on the day after the fire Mr. Cubitt gave to every joiner who had lost tools a sum of money that they might purchase some new ones for his immediate use. In the following week their own estimates were received of their several losses, and each man was paid to the amount of 14s. in the pound on the Saturday, from the sum of 605*l.* subscribed by Mr. Cubitt and his family. In consequence of this liberality the joiners in his employ at the time of the fire presented their employer last week with a written testimonial of their gratitude.

The memorial says that,—"Remembering how great a sufferer he himself has been from this misfortune, they cannot but feel that he has in this present instance offered a still greater manifestation of his generous spirit towards his workmen in addition to the many former proofs he has given them of that benevolence which has characterised the whole course of his life;" and it closes with the expression of a hope that "none of them will ever be found wanting in the faithful and zealous discharge of their duty towards him."

In addition to the sum of 14s. paid to the men on their losses, there has been a further payment of 2s. in the pound to each man out of a subscription forwarded by friends of Mr. Cubitt, chiefly residing on the Belgrave estate, and in whose houses the men are occasionally employed, and there is still a small sum in hand for further distribution.

PROVINCIAL NEWS.

Lynn.—Mr. Stimpson, of Lynn, builder, has obtained the contract for fitting up the Stanley Library, in the Athenæum of this town.

Norwich.—The first stone of the new free public library was laid on Wednesday in last week by the mayor, Sir Samuel Bignold, in the presence of a numerous and distinguished company. A description of the new building has already appeared in the *Builder*. The proceedings were of the usual character. Hopeful and suggestive addresses were delivered by the amateur artificer of the day, and by Mr. Peto, M.P. the Rev. E. Sidney, Sir Fitzroy Kelly, M.P. *cum quibusdam aliis*.

Worstead.—The national school-room in this village has been enlarged from designs by Mr. Phipson, of Ipswich. The building, which is in the Elizabethan style, presents no very noticeable features.

Roxwell.—The church here has been repaired and reopened; the shingle steeple new painted; the old flint facing restored, with quoins and windows (after the model of the old ones) of Bath stone. A new aisle has been added on the north side, and a vestry looking east. The old oak roof, which was ceiled up, has been opened, the tiles new laid, and coping added at the gables; the last gables of nave and chancel being decorated with floriated crosses. The interior has been fitted with open seats of stained deal, and Staffordshire tiles; the chancel, with oak longitudinal seats and Minton's encaustic tiles. Mr. C. Ainslie, of London, was the architect; Mr. R. Dowsett, builder; W. Day, foreman; Cundy (in part) and Hardy, Chelmsford, stonemasons; Abrahams, stainer; tracery of oak sittings carved by Dowsett's carpenters. The work has been fourteen months in hand. The body of the old church would not accommodate more than 200, but by the alterations made seats have been secured for 400. The churchyard has also been improved, the soil being levelled and an addition made to the ground of 67 perches. The whole expense of these works amounts to about 1,800*l.* for the general body of the church, and 300*l.* for the chancel. There remain 200*l.* unprovided for.

Berkhampstead.—The following tenders have been made for Bourne's Schools, about to be built here:—

Hawke	£973	0	0
Burge	940	0	0
Hawkins	750	0	0
Harris (deducting allowance for old materials)	688	10	0
Matthews (deducting allowance for old materials)	687	0	0

Mr. Joseph Clarke is the architect.

Loughborough.—The tenders for the building of the town-hall here have been examined by the committee, who have resolved that Mr. Dennet's tender (of Nottingham), for 3,998*l.* be accepted. There were eleven competitors—the highest being 5,500*l.* It is expected that the work will be proceeded with immediately.

Leicester.—The consecration of St. John's Church, Leicester, took place on Wednesday before last. The building, which is cruciform in plan, consists of chancel and aisles, transepts, nave and aisles, and tower and spire, the ground floor of the tower forming the north transept. The plan of the chancel is octagonal at the east end *in formâ apsidis*, and, besides the aisles, has a vestry attached to it on the south side: there is also a north porch. The material selected for the outer walling is Mountsorrel granite. The west end consists of a moulded doorway, over which is an arcade of five divisions, three of which are pierced for windows, and a rose window with geometrical tracery in the gable, flanked on either side by the western windows of the aisles. The nave roof is of higher pitch than that of the aisles. The ceiling of the chancel is formed of ribs of deal and deal boarding. The ceilings of the other portions are plaster, pane drawn between the common rafters, and a fresco pattern in red runs along each pane. Nave is 84 feet long by 27 feet 6 inches wide; aisles, 63 feet long by 12 feet three inches wide; chancel, 37 feet long by 21 feet 6 inches wide; transepts (from north to south), 70 feet long by 18 feet 6 inches wide; two chapels, 16 feet by 18 feet each. The church will accommodate 700 adults and 300 children. About one half of the sittings will be free. The architect is Mr. Scott. The builders are Messrs. Broadbent and Hawley, of Leicester; and the clerk of the works, Mr. G. Clark. The building was commenced about eighteen months since.

Swindon.—A sale of landed property at the Swindon station last week was attended by a large and respectable company. A higher price was obtained for the Broad-town estate than has been known for many years, being more than thirty-six years' purchase on the present rental. The Bupton estate was, after a sharp competition, bought in at the reserved price: the biddings, however, nearly reached that amount.

Little Bedwyn.—The foundation-stone of the long-promised school buildings, says the *Wilts Mirror*, has just been laid. The edifice is intended to comprise two large and convenient school-rooms, one for girls, and another for boys, with a gallery for infants, and a master's residence. The funds for its erection are provided by the Marquis of Ailesbury, Earl Brucc, and Sir W. Curtis, Bart. assisted by grants from the National Society and the Committee of Council on Education. The children of Froxfield are also to be admitted to these schools. Mr. Major, of Swindon, is the builder.

Marlborough.—Great preparations have been made, says the same paper, for the long looked for Industrial Exhibition. It is now open. Among the promised attractions, "a magnificent picture in needlework, exhibited by Lady Williams," is alluded to.

Weymouth.—Messrs. Goodyear and Son, of Stonehouse, Plymouth, have taken the contract for erecting the market-house here, being the lowest of the tenders, which were as follow: Mr. Crickmay 3,471*l.*; Messrs. Reynolds and Son, 3,589*l.*; Messrs. Goodyear and Son, 3,424*l.*; Mr. Seaman, 3,815*l.*

Bristol.—The Rev. Robert Miles, rector of Bingham, in Nottinghamshire, and son of the late Mr. Philip J. Miles, of Leigh-court, has purchased ground adjoining the city gaol, and formerly the property of the Fowler family, for the purpose of erecting thereon a spacious church, for mariners frequenting the port of Bristol; an almshouse for six or eight sailors' widows; and a suitable residence for the clergyman of the intended new church. The whole, the purchase of the land, the erection of the church, almshouse, &c. as well as the endowment of both, are, it is said, to be at the private cost of Mr. Miles.

Felton.—The newly-erected parish church of Felton, near Bromyard, was opened on Tuesday week by the Bishop of Hereford. The new church is erected upon the site of the old one, and consists of a nave, chancel, porch, tower, and vestry, in the Decorated style of English architecture. The south windows of chancel are filled with painted glass, illustrating Scriptural incidents; and the west window is filled with Powell's quarries. The roofs are exposed to view, and the seats open. The chancel has a stall on either side. The reading-desk is of open tracery, and the pulpit and font are of Bath stone. The aisles are paved with Godwin's encaustic tiles in ornamental patterns. A peal of bells by Mears is fitted up in the tower, and is hung upon a new principle, by which chimes can be rung by one person. The building was designed by and carried out under the superintendence of Mr. T. Nicholson, of Hereford, architect to the Diocesan Church Building Board.

Bangor.—The new church committee have invited plans from several architects named. A confident hope was expressed that the necessary fund would be raised, and that the building operations would shortly commence.

Chipping-Norton.—A new "British" school has been erected in New-street, containing a large school-room, with class-room opening out of it, on each of two floors, and capable of affording ample accommodation for 250 children. The rooms for boys and girls are entered at different ends of the building. A master's residence is also attached as a wing to the building. The schools were to be opened on Friday. The cost of the building, including site, will approach 900*l.* a considerable portion of which has been subscribed.

Stafford.—At a vestry meeting of the united parishes of St. Mary and St. Chad, held in the Guildhall last week, to obtain an additional grant of 500*l.* to 2,500*l.* granted at the previous vestry meeting for a new cemetery, it was stated that it had been thought a piece of land in the Stone-road would have been eligible, but on digging to the depth of 6 feet it was found to be wet, and the Board had selected a piece of land on the Eccleshall-road, for which 250*l.* an acre was asked. Four acres were required, which would be for land 1,000*l.*: the chapels and lodge were estimated to cost 880*l.*; boundary walls, 760*l.* The walls would be built 8 feet high from the surface. The conveyance and various expenses would be, perhaps, 50*l.*; and for laying out the land and sundry expenses, they allowed 100*l.* making a total of 2,790*l.* The motion for a sum not exceeding 3,000*l.* for a new cemetery was ultimately agreed to by a majority of 17 votes against nine.

Wolverhampton.—The restoration of the Collegiate Church, according to the local *Chronicle*, is making considerable progress. The central portion of the west end has been almost entirely reconstructed; and the window and doorway have been reinstated according to their original structure. The window will be filled with stained glass, as a memorial to the late Duke of Wellington, if the necessary funds can be obtained. The clerestory has been entirely rebuilt, and ornamented with pinacles. The temporary roof, which had been erected over the interior of the nave, has been removed, exhibiting to view the carved oak roof. Progress in the remaining portion of the restoration is being made by the contractors, Messrs. Higham, of this town, builders.

Liverpool.—The new schools in connection with St. Mark's Church, the foundation-stone of which was lately laid, will be constructed of gray brick, with quoins, dressings, and wrought stone work of the local red sandstone. The architect for the edifices is Mr. T. D. Barry. The contract for the building has been taken by Mr. Thomas Hughes, and the cost is estimated

at 2,200*l.* We shall give a view.——The proposition made by the dock committee for the extension and improvement of the docks, at an expenditure of three and a half millions, was fully discussed at a meeting of council on Wednesday in last week. The principle of the scheme was adopted, and the necessary powers were granted for proceeding to Parliament to obtain an Act to enable the dock committee to carry out the plans, which, as time advances, will have to be discussed and approved of in detail.

Wallasey.—The Wallasey Board of Health lately resolved to advertise for the best plan to drain and sewer the district,—a premium of 160*l.* to be given for the best, and 50*l.* for the second best plan.

Levenshulme.—The new building for the Mechanics' Institution in this village, has now been completed, and was formally opened on Saturday week by a *soirée*, under the presidency of Mr. James Sidebottom, who has taken great interest in the success of the undertaking. The entire cost of the premises, including master's house, school apparatus, furniture, &c. is little over 1,000*l.* towards which sum 530*l.* 12s. have been received, and about 80*l.* promised. In addition to this 150*l.* will be received from private friends in connection with the old institutions, leaving a deficiency of 300*l.* On the ground-floor of the building are day and evening schools capable of holding 250 children. On the same floor are a reading-room and a room for library, which now contains 600 volumes. It is intended to use this large room for lectures on literary and scientific subjects, miscellaneous concerts, singing, and other classes. Messrs. Davison and Son, builders, have completed the work. Mr. Alfred Fisher, architect, gratuitously furnished the plans. The number of members now in connection with the institution is eighty-four; honorary members, ten.

Maryport.—Mr. Nelson, of Carlisle, according to the local *Journal*, has been engaged as the contractor for the new wet dock here. The extent of dock will be three acres, and the present one will form an entrance or dock basin. The coffer-dam and excavations are to be completed by January, 1856. The dock gates and walls or wings will form a separate contract. The deepening of the harbour and channel is carried on under the trustees.

Newcastle.—The contracts for the extensive buildings to be erected in St. Nicholas-square, Newcastle, says the *Gateshead Observer*, were let by the Town Improvement Committee of the Corporation, on Wednesday, to Mr. Robert Robson, of Wide-open, for the sum of 16,944*l.*

REOPENING OF SHOTTESBROOKE CHURCH.

SOME of our readers are doubtless already acquainted with the ancient church of St John the Baptist at Shottesbrooke, Berks, whose tapering spire, 150 feet in height, has awakened the attention of many a passer-by, as well as called forth the admiration of ecclesiologists in general. It was originally attached to an adjoining monastery, and dates from the year 1337, though there was previously on the same spot an edifice of Norman work, mentioned in "Doomsday Book." Sir William Tressell, of Cubblesdon, in Staffordshire, was the founder of the present structure, and within are still to be seen the elaborately-carved tombs in which repose his remains and those of his lady. The plan of the building is a Latin cross, the length of which is 80 feet, and the width of the transepts about 50 feet.

Till a year ago the interior was in a most deplorable condition; and much as it still contained to delight the antiquary and to afford food for the suppositions of the seeker after hidden things, the general effect of the white-washed walls, galleried transepts, high-built pews, and above all, the total absence of appropriate arrangement within the chancel, gave ample room for a return to better order and more church-like feeling. Since then something has been done. A chancel-screen of Painswick stone, the proportions of which were regulated by the traces of the earlier one, has been put up, and stalls which are terminated with carved poppy-heads.

The pulpit, on the south side, is of alabaster, inlaid with pieces of variously-coloured Derbyshire marble. The altar-rail is of light ironwork, as are also the gates of the screen. These are all the work of Mr. Wyatt, of Oxford. The seats, both in nave and transepts, face the east. Only a few detached pieces of the old stained glass remain, and it is much to be wished that the subscription now begun for a painted east window may be speedily filled up. Mr. Street was the architect.

There are in the north transept some old brasses in very good condition: here also rest the remains of the learned Henry Dodwell. The little village of Shottesbrooke lies about four miles from either Twyford or Maidenhead station; and a visit to this interesting church would well repay the traveller by Great Western Railway for the few hours that the digression would cost him. The present rector is the Rev. Charles Vansittart.

COSTS OF BRICKMAKING.

THE statement of "A Surveyor" (p. 467, *ante*), has brought us a dozen letters from brickmakers, denying that bricks can be made for the price therein given. "A Surveyor" simply stated what others had said on oath: the correctness or otherwise of the information rests with the witnesses. The following will represent the opinions of the dissentients:—

In reply to the letter of 'A Surveyor,' and in justice to the brickmaking trade, I trust you will oblige me by the insertion of the following detailed account of the average cost of making bricks in the ordinary way. Some of the items I know are much below the average of the last three years. For instance, last season and the preceding one, few brickmakers were able to purchase ashes at less than 10s. per chaldron, delivered in the field, and many large makers were compelled to give as much as from 12s. to 14s. and even 16s. The expense of measuring, sifting, and waste adds at least 1s. per chaldron to the cost, and as a chaldron of ashes in breeze and soil is required in making two thousand bricks, 6s. would no doubt be a much nearer estimate. It is rather singular the witnesses should say that 300*l.* are sufficient capital for making a million of bricks, when, according to their own showing, at 15s. 6d. per thousand, including royalty, nearly 800*l.* are necessary for the purpose. Brickmaking is over, and consequently the brickmaker's capital all expended, about the end of August, or nearly a year from the time he commences, by which time, and seldom before, he begins to have a return; so that at the lowest estimate 800*l.* are barely sufficient to make the quantity mentioned, to say nothing of keeping stock over a year, or even two years, in times of depression, in the building trade:—

	Per Thousand.		
Rent of field	£0	0	3
Ashes	0	4	6
Removing top mould	0	0	2
Digging earth	0	0	6
Soiling and turning earth	0	0	6
Chalk, and expense of washing	0	0	3
Moulding	0	4	4
Horse grinding earth	0	0	6
Sand	0	0	6
Straw and hurdles	0	0	4
Setting	0	1	8
Bolting, sorting, &c.	0	0	6
Loading	0	0	6
Implements, tools, &c.	0	0	6
Superintendence	0	0	9
Interest on capital	0	0	9
Royalty	0	2	0
Bad debts	0	1	0
Preparing hacks, obtaining water, making roads, coals and wood in burning, and materials for building sand-houses, &c. &c	0	0	6
	£1	0	0

You will perceive the above estimate is for the cost of making *bricks*, the brickmaker being entirely dependent on the weather for the proportion of good stocks or shuffs and rubbish he will get from his clamps. A course or two at the top, bottom, and sides, are invariably place, and sold at from 15s. to 20s. per thousand. Many of the bulk are likewise unavoidably grizzles and rough bricks, which sell for about 4s. more than place. A brickmaker, too, considers himself fortunate indeed, if he have less than two courses of shuffs at the top of the clamp, the price of which is from 8s. to 10s. per thousand. An ordinary clamp is about thirty courses high, and the last two seasons I have known that many, and heard that most brickmakers near London have had from four to eight courses of shuffs on the clamps, occasioned by the wet weather. Taking into consideration the extraordinary fluctuating character of the brickmaking trade, and its dependence on the weather, I do not believe that good stocks can be sold at less than 28s. per thousand to yield a profit of 20 per cent. which a manufacturer is fully entitled to, who only turns his capital once a year. B. L. Jun.

VENTILATION OF SEWERS.

OUR LAMP-POSTS.

COMPLAINTS of the gully-hole emanations are now general; and though I should be sorry to defend the barbarous practice of ventilating the sewers through slits in the streets or through the gully-holes, yet there is one view of the subject which has escaped the notice of the public, though, of course, scientific men are aware of it. It is this:—If the foul air cannot get away through these street openings, it will make its way through the house-drains into the interior of houses, and woe be to the tenant whose drain is untrapped. The flap-traps are never air-tight: even the syphon-traps are frequently inefficient.

In a county town a few years ago, the borough surveyor was afflicted with a vehement spasm of gully-trapping. There was immediately a rapid increase of disease, and in the higher parts of the town, clearly attributable to the fact of the foul air entering the houses through the untrapped drains.

What are we to do between the two fires? At any rate, the liberty of the subject should be so far trespassed upon as to make it compulsory on the landlords to have the house-drains trapped, whether they like it or not. Next, if by some means the sewers could be relieved of the air-pressure inside tending outwards, we should get rid of the discharge through the outlets in the streets.

I would suggest that the Commissioners might make an experiment to ascertain if this could not be done by means of chimney-shafts divided from top to bottom into two unequal flues. It would not cost much to make the experiment on a small scale first. The difference in area making a difference in the friction of the two columns of air, up and down, would create a draft of some power; of what amount that power would be, to be ascertained by the experiment. The draft might be slow, but it would be continual, requiring no fuel, and no attending to. From this might approximately be determined the number of ventilating-shafts for a given district.

Passing to another subject, I notice your remarks upon the lamp-post, or rather post for a lamp, opposite the Horse-guards: let me draw your attention to an abortion of the public-house or gin-palace description in a lamp-post near Vauxhall-bridge. B. R. A.

ELY BURIAL CHAPELS.

THE "CLAYBRICKÆOLOGICAL STYLE."

NOT less than twenty-five designs for these chapels were sent in, all of them more or less ecclesiastical in style, with the exception of one, which was *Egyptian*, heavy, massive, sepulchral, and solemn, and to be lighted only through openings in the frieze! The memorandum which accompanied it was written in so semi-serious, semi-jocular a style, that I forward it to you for the amusement (if not edification) of your numerous readers.

W. MARSHALL, Clerk of Burial Board.

After giving his reason for adopting the Egyptian style, namely, that the only available building material in the locality is brick, which he thinks does not suit the "ecclesiastical style," the writer proceeds,—

"But it may be said, that the plans I have given in are not purely Egyptian; there is as much of the Grecian style in their composition as Egyptian. I care not what name it gets. I am not a sticker to names, styles, or fashions: it may very appropriately be called the *Plain Common Sense* style. But perhaps that would be too vulgar a name for *archæologists*, therefore I would propose to give it the very learned, elaborate, and pretty name of *Claybrick-æological* style of architecture; and if you adopt it, you shall have the merit of introducing a new style of

architecture into the country, and your names shall be handed down to posterity as the first introducers of the Claybrickæological style of architecture. I would, therefore, strongly advise you to accept my plans, and send me the 10*l.*; not that I care for the money, but I am anxious to get a Claybrickæological Society established, to compete with the numerous *archæological* societies which are disseminating too many *tailoring* views and opinions of architecture into society. But should you not see it in the same light as I do, and be inclined to pass a vote of censure on my plans and description of the Claybrickæological style of architecture, then you will find I have taken shelter behind a screen, and will not feel your censure; and I give you full liberty to publish this in the *Builder*, in order that all the competing architects may see it.

Whatever may be said against the Claybrickæological style of architecture, I am certain that the poet's description of Gothic architecture cannot apply to it viz.:—

'Fine architecture * * * * * * *
Windows and doors, in nameless sculpture drest,
With order, symmetry, or taste unblest;
Forms like some bedlam statuary's dream,
The craz'd creations of misguided whim.
Forms might be worshipp'd on the bended knee,
And still the *second* dread *command* be free.
Their likeness is not found on earth, in air, or sea.
Mansions that would disgrace the building taste
Of any mason reptile, bird, or beast.'

Q. E. D."

We may add, that Mr. J. D. Pritchett, of Darlington, was the successful competitor in this matter.

THE LATE FIRE AT GLOUCESTER CATHEDRAL.

IMPORTANT DISCOVERIES.

WE desire particularly to engage the attention of our professional readers in regard to the recent fire at Gloucester Cathedral, as the details are both important and interesting, as well as general in their application.

Shortly before the occurrence of the fire, the workmen who had been engaged in polishing the throne, and other carved woodwork in the choir, left off, it being six o'clock p.m. Three hours afterwards, the fire was discovered in a pew in front of the throne, and where they had left their tools and materials. The men had been employed in applying *boiled oil and turpentine* in equal proportions to the woodwork, *rubbing it dry with cotton rags*, chiefly portions of old cotton stockings. These after use they placed in a rush basket, and set it in the pew in front of the throne. This was exactly the place where the fire broke out three hours afterwards. It was supposed that the men had used fire and left some of it kindled when they finished work; but on a strict examination, all denied that any fire or match had been used by them on that day.

Experiments were thereupon made, with the view of ascertaining distinctly whether the fire might not have been caused by spontaneous combustion. The men employed placed their rags (saturated with oil and turpentine), in a rush basket as before. In an hour the outside of the basket was found to be warm, and soon after the rags began to smoke. In two hours a continuous and strong cloud of smoke escaped from the basket, and in three hours the whole burst into a flame! This experiment, we are told, was twice tried with the same result, and it fully accounts for the fire at the cathedral on the 8th inst. and, doubtless, for many others.

The danger of such a combination as that of *cotton* with boiled *oil and turpentine*, has been long known to many, and we have repeatedly brought it under notice. It is to be hoped that now it will be more widely and generally known than ever. It is probable that in some seasons such spontaneous firing of materials is much more imminent than in others, and this fact itself, we think, may come to form an important link in the chain of evidence, referred to in another column of this day's *Builder*, through which the mysterious cause of cholera, and its consequent cure or prevention, are now, we do believe, very likely to be expiscated. If there be an excess of excited or inflamed oxygen, or "ozone," in the atmosphere, in seasons when epidemics prevail, as Schönbein, its discoverer, alleges, and especially, as Mr. Mayhew maintains, in cholera seasons, it is easy to account for the prevalence of spontaneous fires in *such* seasons at least; and as easy to understand the heretofore strange and unaccountable association of pestilence and fire, from the London plague period down to the present day.

BURIALS IN THE METROPOLIS.

ST. ANDREW'S, HOLBORN.

WILL you inquire what the Board of Health are about in allowing, as I presume they must, the interments to continue, and at a frightful rate, too, in the burial-ground attached to St. Andrew's, Holborn? I think not less than forty per week for the last twelve months have been interred, and they still continue.

To-day fresh ground is opened. It cannot be that pecuniary reasons influence the authorities, as the living is returned at 1,300*l.* per annum; and there is a freehold estate for the church purposes, producing a like amount.

The rector has been absent for many weeks, no doubt to keep out of harm's way. H. W.

CAUSES OF DISEASE.

ST. JAMES'S, WESTMINSTER.

HAVING read the article in your journal on the subject of the late fearful visitation of cholera in the neighbourhood of Broad-street, Marshall-street, and other streets adjacent in the parish of St. James's, in which you describe the bad state of the drains and some of the houses in that locality, and being an inhabitant of that district, I cannot refrain from addressing you, for the purpose of making more generally known, through your columns, a serious nuisance which exists in our vicinity, and which has not been alluded to. It is a large slaughter-house, or, I may say, several slaughter-houses in one, together with tripe-boiling and I believe offal boiling-houses, in Marshall-street, the immediate vicinity where so many deaths lately occurred: there is also a large pen for live cattle as well as an extensive cow-shed attached, and the odours emitted from these places for days together, and frequently at nights, when the offal-pits are being emptied, is past all description: it produces loss of appetite, vomiting, &c.: in fact, persons become seriously ill through it, and as I have myself experienced these effects, I can speak with certainty on the subject. These extensive premises are surrounded by the houses of Marshall-street, Silver-street, Carnaby-street, and Marlborough-row; and the fact of so many deaths having occurred in all these streets about the same time, I think, speaks volumes against this pestilence-creating establishment.

In spite of the great exertions of our parish authorities at this critical period, their labours are thwarted by this vile nuisance.

AN INHABITANT OF ST. JAMES'S.

Miscellanea.

CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.—The neighbourhood selected for examination by this society on the occasion of its holding the eighth annual meeting, was the Vale of Clwyd, and Ruthin was fixed upon as the head-quarters of the antiquaries. Accordingly the members began to muster on 12th inst.; and on Wednesday the inns were full. A museum was formed for exhibition in the court hall, where the annual meeting, consisting of between forty and fifty gentlemen, was held on the evening of 13th inst. Mr. West took the chair, and addressed the meeting. The usual report was then read, and, after some farther procedure, the first day's assemblage was dissolved. On the 14th, a large party of ladies and gentlemen visited the town and castle, where the chief matters of interest were pointed out. In the evening, an essay was read on Roman and other Remains at Caersws and neighbourhood, by the Rev. David Davies, of Llanwnog, Montgomeryshire. On Friday, the 15th, Eyarth, Efenechtyd, early remains on adjacent mountains, and Pool Park, were visited. Llanrhaiadr, Denbigh, St. Asaph, and Rhuddlan were to receive the society on Saturday; and Llangollen and Rug to be explored on Monday and Tuesday.

BUILDING ACCIDENT AT LIVERPOOL.—Three men were employed last week in cementing a top cornice at the exterior of a house in Whitechapel, Liverpool, when the cornice, yielding to the weight of the cement, gave way, the scaffolding was thrown down, and the men were projected into the street, from a height of about thirty feet. Two of them were severely injured, but none fatally.

THE SUFFOLK INSTITUTE OF ARCHÆOLOGY AND NATURAL HISTORY.—The next general meeting of the members and friends of this association will be held at Ipswich, on Thursday, 28th inst. under the presidency of the Hon. and Rev. Lord Arthur Hervey, the president of the institute. The proceedings of the day will be closed by a dinner at the Town Hall, to which ladies will be admitted.

PALESTINE ARCHÆOLOGICAL ASSOCIATION.—The first annual general meeting of this new Association was held on 12th inst. at the residence of Dr. John Lee, LL.D. F.R.S. the College, Doctors'-commons, for the purpose of receiving the report of the council and of the treasurer, electing council and officers for the ensuing year, and transacting other business; Mr. Joseph Bonomi, M.R.S.L. in the chair. The report of council was read by Dr. Turnbull, one of the honorary secretaries, and gave a favourable account of preliminary procedure. After this and the treasurer's report were adopted, an address was read, detailing the suggested and contemplated objects of the association, and treating of a variety of archæological subjects connected with the Holy Land, research and investigation as to which were strongly recommended.

SOMERSET ARCHÆOLOGICAL SOCIETY.—The annual meeting of this society commenced on the 12th inst. at Taunton, under the presidency of Mr. Labouchere, M.P. for the borough. The museum was augmented by contributions. A preliminary meeting for election of officers, &c. having been held (at which Sir John Ramsden was added to the vice-presidents), a large company of about 200 met in the Assembly-rooms, when the chairman delivered an opening address. The annual report was then read. It mentioned the accession of twenty-seven new members. The Rev. Mr. Scarth read a paper upon three stone coffins discovered recently at Coombe Down, near Bath. The Rev. F. W. Warre read one by Mr. Stradling, entitled "A Young Turf-parer's Find in the Turbaries," in which he referred to "a curious phenomenon connected with turf-cutting. The delver, sometimes at 8, 9, or 10 feet in the ground, and when within a foot or two of the clay on which the turf rests, is suddenly lifted to the mouth of the pit, so that he steps off without any difficulty." "A very old and experienced workman informed me," added the writer, "that he had had several of these wind and water rides in his time, and that when wind caused the platform to rise, it went up steadily, and when at the top he had only to pass his scythe through the mass, and the wind passed off with a sound like the drone of a bagpipe, and the cutter descended to the bottom and resumed his work. When water was the cause, the ascent was more rapid, and the pit became useless." The Rev. W. F. Jones then read a paper on the Application of Philology to Archæological Investigations, and Mr. Freeman, one on "The Perpendicular of Somerset compared with that of East Anglia." The company afterwards adjourned to the London Hotel, where an "ordinary" or banquet was served. Nearly 100 persons sat down. At the evening meeting, amongst others, Mr. Charles Moore, of Bath, read a paper on the inferior oolite of Dundry, with description of new brachiopods. On the following day the society proceeded on an excursion.

BUILDING LEASES.—It must be admitted that too much care cannot be taken by a builder to ascertain the title to the land on which he is about to expend his money. It may be copyhold, and may subject the builder to not a few of the inconveniences attending that abominable tenure. Some discussion has lately taken place in the *Legal Observer* on the subject, and "Fair Play" (p. 185, of 8th July, 1854), who advocates with some ingenuity the cause of the lord of the manor of Kennington, speciously comes to the conclusion, that no objection would arise on the part of builders to subject themselves to contribute towards the payment of a fine according to the *rack-rent* on a change of tenancy. "Fair Play" states, "It might be inconvenient, but not unjust or hard on the copyholder, who, had he possessed common sense, would not have granted a lease for building purposes, well knowing that the annual value would be very greatly increased, and also well knowing that on every change of tenant *a fine of two years' improved value* would be payable, without making it one of the terms of the lease that all payments of fines *beyond two years' purchase on the rent reserved should be payable by the lessee*. By adopting that course, the copyholder would only have to pay on the amount of the rent payable to him: the *lessee might readily calculate the value of the liability he took on himself*," &c. The object of my addressing you is to request the favour of the sentiments of competent persons on the subject, and more especially whether there is any objection on the part of builders generally, to accept leases with a stipulation to pay all fines assessed on the copyholder on a change of tenancy beyond the ground-rent reserved, they, the builders, effecting insurances at their expense to protect them against such liability. I trust that surveyors, and those interested in the question, will not fail, for the edification of lords of manors, to furnish you unreservedly with their sentiments on the plausible proposal so well calculated to benefit the lord.—F. S. A.

*** It is not a question for discussion. No man in his senses would build on land so circumstanced.

THE ANCIENT REMAINS DISCLOSED AT GLOUCESTER.—The sewerage works are nearly completed, but the greatest curiosity hitherto found, according to the local *Chronicle*, is the tesselated pavement in Long Smith-street, which has now been carefully uncovered. The tesseræ are of four colours, black, white, red, and orange, the border of the floor being of zig-zag pattern, and a centre of foliage, the leaves being heart-shaped. The excavations in the principal streets have been carried, on an average, to a depth of 10 feet, and it is suggested as one reason why more curiosities have not been discovered, that at about a parallel with the present surface, at a depth of 10 feet, are the Roman roadways, formed of concrete: in many places where the substratum was soft or boggy, this concrete was laid upon bushes or faggots—a system which we assisted in re-establishing in the present day. The position of Roman buildings has been defined in several places, the largest in St. John's-lane, where the base of a column of the attic order was found at a depth of 12 feet, and also the foundations of a building, which by its thickness (3 feet) might be supposed to have been extensive. At the upper end of the lane was found, at a depth of 11 feet, a pavement, the *tesseræ* of which were about 1 inch square. The base of an Attic column was also found at the top of Queen-street, at its junction with Eastgate-street. Long Smith-street has been the richest antiquarian field hitherto. This is the highest spot in the city. Here two pavements have been found,—the one before alluded to, and another of a larger and coarser kind, similar to that found in St. John's-lane. The *debris* of decorated plastering were also found, and some Roman tiles. In excavating on the north side of the cathedral a large quantity of *fictilia* of Samian pottery was discovered, and has been partially restored. From the old ditch of the ancient fortifications were brought to light several mediæval knockers. In Westgate-street, the ruins of St. Mary-de-Grace and Holy Trinity churches were met with. These churches were pulled down about 1665. The upper part of the baptismal font of Trinity Church was found. Under the Fleece Inn, the crypt of Trinity Church still exists in good preservation, but is now used as a cellar.

THE ADELPHI THEATRE. — This always well cared-for little theatre has been pleasantly painted during the short recess, and improved before the curtain, and has a very light and agreeable appearance. White with gold mouldings has been adopted, the panels in the front of the dress circle being of light blue, ornamented with cameos. The company remains in its former force. The novelty is the reappearance of Mr. Morris Barnett as *M. Jacques*, for a few nights. It is a beautiful piece of natural acting.

THE CHURCH KEY; A HINT.—Many a time the pleasure of a quiet steeple-chase from village to village has been marred by the discovery that the "clerk," who for the most part has sole possession of the church-key, lives half a mile or more from the church. We have reached the grey old edifice, hot and weary, and thus are doomed, it may be, to retrace our steps for a considerable distance, having unwittingly passed his cottage on our way. In addition to this, it is no rare occurrence to find that the important personage and all his family are from home, haply in the harvest-field, or gone to the market; so that we are regularly nonplussed. This may, perhaps, be a good lesson to teach us patience; nevertheless, I fear that in the majority of cases, it does not tend to promote equanimity. I venture, therefore, to ask the parochial clergy, through the columns of *The Builder*, to endeavour to make some arrangement for preventing such disappointments. That they will be willing to do so, I am fully persuaded; and I anticipate that the mere insertion of this hint will cause the ground of complaint to be in many cases removed.—BETA.

LINCOLN CATHEDRAL.—The underground room beneath the cathedral vestry has been cleansed out, and the earth removed from the window gratings. Access is obtained to it by a trap-door and flight of stone steps. In descending there is a small room, without windows or doorway, access being obtained only through a manhole in the wall, so that the masonry being replaced no one could tell that the room existed. It is supposed to have been the ancient treasury of the cathedral.

FAILSWORTH CHURCH.—We are sorry to hear, says a Manchester paper, that it has been found necessary to close this church, in consequence of the failure of the works. Almost immediately after its completion in 1846, the ceiling began to fall, and it has continued to do so ever since, until at length it has become dangerous to life to assemble within it for divine service. In addition to this, the floors are nearly all destroyed by the dry rot, and they, as well as the ceiling, require to be entirely renewed. The state of this, and of many others of our new churches, it is observed, should make church building committees very careful in the erection of sacred edifices.

GAS.—A Patent Solidified Peat Coal Company has been formed, for the licensing of the manufacture of a sort of artificial coal from peat, free of sulphur, and consolidated so as to form a substitute for ordinary coal. Dr. Letheby gives a favourable chemical report of its properties. It is proposed to get rid of the corrosive adjuncts to coal gas by the use of this peat coal. It is reported by Dr. Letheby to be capable of yielding 14,000 cubic feet of gas per ton, and to possess the requisites for a good fuel.——At a numerous public meeting held at Liverpool, on Monday in last week, it was resolved to support the new scheme of a consumers' gas company, already noticed. The price is proposed to be three shillings, and the maximum dividend 7½ per cent.

"WHY SHOULD WE NOT FILTER OUR AIR?"—Under this title, a writer in the daily papers, under the signature of "Sanitas," brings Dr. Stenhouse's suggestion of charcoal respirators, and the previously well-known detoxicating power of charcoal generally, under review, and advocates its use as a covering over graves, and other sources of poisonous gases, as well as for the more direct filtration of the air as it enters our houses, &c. Many chemical manufacturers, it is stated, have supplied their workmen with charcoal respirators; but we doubt much whether they will be often at the trouble to put them on. Others, he says, recommend that during the time cholera remains amongst us, no person shall walk about unprotected by the respirator. The writer points out that charcoal does not prevent decomposition of animal remains; but on the contrary, promotes it, destroying the noxious gases, however, emitted in the process of decomposition. It is supposed to absorb and condense immense, and indeed, fabulous quantities, both of these gases, and of the oxygen which destroys them; but it appears to us much more likely that it only promotes the combination of oxygen with such gases, or their slow combustion, acting in this respect analogously to spongy platinum in a more obvious process of combustion; and hence, so long as oxygen exists in contact with the noxious gases of decomposition, the charcoal will go on to promote their sanitary combination, independent of any accumulation and exhaustion of oxygen condensed in its pores. There is much importance, together with a little Quixotism, in what is said about filtering our air. As for covering graves, the process must be useful, and ought to be adopted; but we trust it will not hinder the total abolition of intramural burial.

GRINDING AND TEMPERING STEEL AND OTHER METALS.—Mr. J. Chesterman, of Sheffield, has patented several improvements, for grinding, tempering, glazing, brushing, and buffing steel and other metallic articles; the hardening and tempering processes applying principally to thin steel, such, for instance, as saw-blades. A flat plate is to be grinded on both sides at once by means of an upper and nether grindstone, between which the workman forces and works it while the stones are rotating. The "grinders' complaint" is supposed to be mitigated by this mode of operation, which also enables the workman to stand more erect, and use moderate exercise. To glaze, buff, and brush blades of steel and other manufactured metal articles, the patentee employs similar rollers, formed of soft wood, with emery on the surface, or of buff leather, or bristles, or partly of buff leather and part bristles, or the surfaces may be made similar to those ordinarily employed for glazing, buffing, and brushing. For hardening and tempering the patentee takes a strip from 10 to 30 feet long, as required, and winds it into a circular cast-iron box. In the side of this case is a slot, through which one end of the steel protrudes. It is then placed in a furnace, red heated, and withdrawn by one workman, while another draws it through a pair of cold steel or stone dies, by which it is hardened, and comes out flat. Shorter and thicker articles are operated on by placing them as they are in a suitable furnace, and then drawing them through the dies.

CESSPOOLS.—Emptying these is fraught with many evils to all concerned: let me suggest a mode that I have seen adopted, viz. that of first laying the drain-pipes, then tapping the cesspool, and flushing the whole into the sewers. A grating is affixed to end of pipes to prevent passage of extraneous matter: the whole filled in with lime and gravel. The total abolition of cesspools must be made compulsory: landlords will not make the necessary outlay unless compelled so to do; and the sooner this is done the better. In many cases I have seen lately, cesspools are actually under the kitchen floors;* an admirable arrangement truly! You will have observed the one thing wanting in the Board of Health arrangements is a corps of properly qualified "Inspectors of Nuisances:" this is at present the province of amateurs, — or rather no one's business.—SALUS POPULI SUPREMA LEX.

* In hundreds of cases,—as we have repeatedly shown.—ED.

MONUMENTS AND EPITAPHS.—Disapprobation was recently expressed in your journal, and very rightly, upon the want of good design in the greater part of the memorials in Kensal-green Cemetery. It is ridiculous to think of things that are intended to be exposed to view and to be seen by all being made so unsightly: they are generally all ugly and all alike, or differ only to show how many degrees of ugliness may exist. It is a disgrace that so much which is repulsive to the taste meets the eye in a saunter among the last resting-places of our fellow creatures; so much that makes us get away as quick as possible from spots that are consecrated by our kindred clay, and so much which reflects such discredit upon the living. Surely the utmost grace and consideration for the dead should be openly shown in the sight of the living, and elegance bestowed on these monuments. So also with respect to epitaphs; they are universally bad; their composition such as would be rejected from the pages of any publication. How often do people, led by curiosity to read the lines, turn away from them in disgust? Of all places these are the last where such a shock should be given to the feelings and to the sense of appreciating what is just and suitable. The ancients managed these things better: even here they sacrificed to the graces; gave what they did write upon the monumental stone all the charm of verse their best poets were capable of, but never perpetuated an untruth, or hinted a questionable fame, or marked it with a profane word. We must improve the character both of our tombs and epitaphs, that our churchyards and cemeteries, rendered worthy of the dead, may at the same time improve and elevate the thoughts of the rising generation.—F. L.

CANTERBURY CATHEDRAL RESTORATIONS.—In the report of the commissioners on the cathedral and collegiate churches, it is recorded that the cost of the rebuilding of the north-west or Lanfranc's Tower, has been 25,000*l.* and that the gradual restoration of the whole fabric, exterior and interior, has been in progress from 1823 to the present time. The whole amount expended in thirty years is stated at nearly 100,000*l.* arising from capitular funds.

VALUATION OF LEAMINGTON.—A correspondent states that Mr. Robert Syer Hoggar, of Wolverhampton, is appointed to make the valuation and assessment of Leamington.

TENDERS

For Pottery Works at Cliffe, Kent. Quantities not supplied.

Hopkins and Roberts	£1,800	0	0
Hocker	1,550	0	0
Tolley	1,165	0	0
Price and Brockwell	1,163	0	0

For the erection of a Dwelling-house, Shop, and Offices at Kingston-on-Thames, for Mr. Nuthall. Mr. James Tillott, architect. The quantities not supplied.

Walker, Kingston	£1,844	0	0
Crowley, ditto	1,809	0	0
Pratt and Son, London	1,698	0	0
Boxall, Kingston	1,497	0	0
Mason, ditto (accepted)	1,487	0	9

For the erection of a Warehouse in Gresham-street for Mr. J. Edmonds. The same architect. The quantities supplied.

Haward and Nixon	£3,077	0	0
Mansfield and Son	3,040	0	0
Lawrence and Son	2,980	0	0
Brown	2,937	0	0
Grindell	2,835	0	0
Brass and Son	2,777	0	0
Rider (accepted)	2,674	0	0

For Schools at Lower Tooting, Surrey. Mr. Joseph Peacock, architect. Quantities taken by Mr. Northcroft.

Piper and Son	£1,689	0	0
Barton, Clapham	1,480	0	0
Myers	1,460	0	0
T. D. Carter	1,370	0	0
Rudkin, Marylebone	1,268	0	0
Hopkins and Roberts, Islington	1,260	0	0
Clever and Stanger	1,254	0	0
Taylor and Honeyman, Tooting	1,220	0	0

For Two Chapels, Lodge, and Entrance-gates for Boston Cemetery. Pritchett and Sons, architects.

Webster and Lee	£1,500	0	0
Benniston	1,475	0	0
Baker and Son	1,282	17	6

Exclusive of carving, floor-tiles, and desks, which amount to 80*l.*

TO CORRESPONDENTS.

"J. A." "T. W." "P. W. B." "S. C." "E. C." (we are always glad to do so when the opportunity is afforded). "A Subscriber," "J. R. R." "Original Subscriber" (under our mark). "T. T." (ditto). "W. W." "L. G." "J. S." (we cannot comply). "W. J. P." (shall hear from us). "M. J. L." "Junio" (what is sent does not enable us to judge). "M. S." (contrary to our practice). "J. H." "C. A. W." "G. R. C." (parcel at office). "Sir W. J." "Subscriber" (should have sent his name).

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and not to the Publisher.